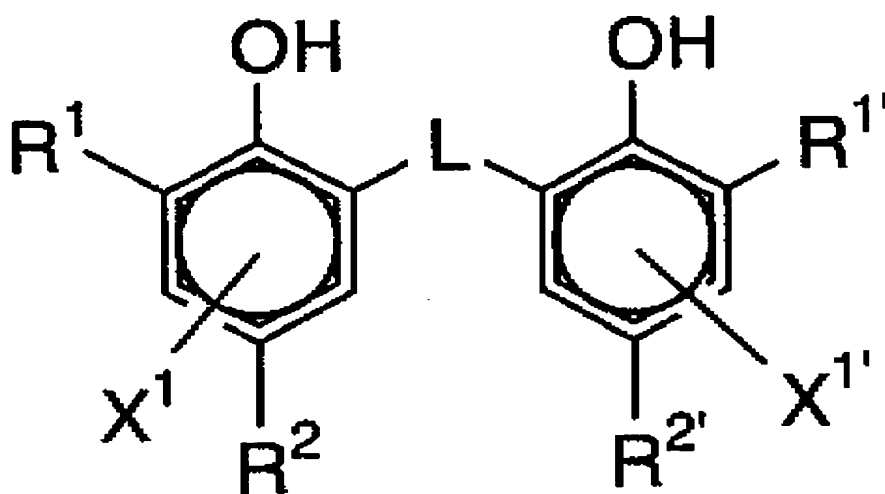


What is claimed is:

1. A photothermographic material comprising a photosensitive silver halide, a non-photosensitive organic silver salt, a reducing agent, and a binder on at least one surface of a support, wherein silver iodide is contained in the photosensitive silver halide in an amount of 40 % to 100 % by mole, and the reducing agent contains a compound represented by the following formula (R-1):

Formula (R-1)

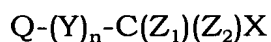


wherein R¹ and R¹' each independently represent an alkyl group having 3 to 20 carbon atoms, in which a carbon atom bonding to the benzene ring is secondary or tertiary; R² and R²' each represent a methyl group; L represents an -S- group or a -CHR³- group, in which R³ represents a hydrogen atom or an alkyl group having 1 to 20 carbon atoms; and X¹ and

X' each independently represent a hydrogen atom or a group capable of being substituted on the benzene ring.

2. The photothermographic material of claim 1, further comprising a compound represented by the following formula (H):

Formula (H)



wherein Q represents an alkyl group, an aryl group, or a heterocyclic group; Y represents a divalent connecting group; n represents 0 or 1; Z₁ and Z₂ each represent a halogen atom; and X represents a hydrogen atom or an electron withdrawing group.

3. The photothermographic material of claim 1, wherein the silver iodide is contained in the photosensitive silver halide in an amount of 90 % to 100 % by mole.

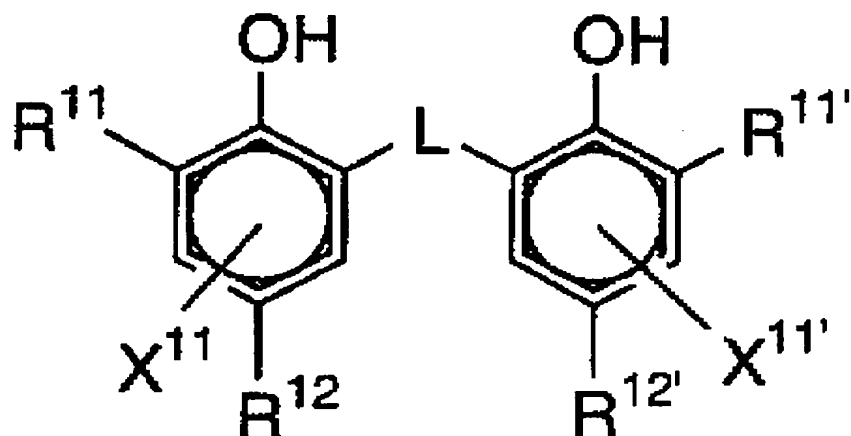
4. The photothermographic material of claim 1, wherein the photosensitive silver halide has a mean grain size of 5 nm to 80 nm.

5. The photothermographic material of claim 1, wherein the photosensitive silver halide has a mean grain size of 5 nm to 40 nm.

6. The photothermographic material of claim 1, wherein the

reducing agent further contains a compound represented by the following formula (R-2):

Formula (R-2)

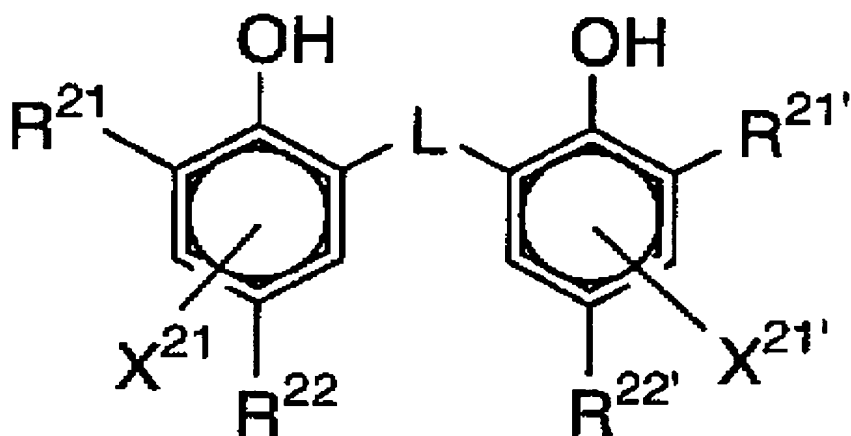


wherein R¹¹ and R^{11'} each independently represent an alkyl group having 3 to 20 carbon atoms, in which a carbon atom bonding to the benzene ring is secondary or tertiary; R¹² and R^{12'} each independently represent an alkyl group having 2 to 20 carbon atoms; L represents an -S- group or a -CHR¹³- group, in which R¹³ represents a hydrogen atom or an alkyl group having 1 to 20 carbon atoms; and X¹¹ and X^{11'} each independently represent a hydrogen atom or a group capable of being substituted on the benzene ring.

7. The photothermographic material of claim 1, wherein the reducing agent further contains a compound represented by the following

formula (R-3):

Formula (R-3)



wherein R^{21} and $R^{21'}$ each independently represent a methyl group or an alkyl group having 2 to 20 carbon atoms, in which a carbon atom bonding to the benzene ring is primary; R^{22} and $R^{22'}$ each independently represent an alkyl group having 1 to 20 carbon atoms; L represents an -S- group or a -CHR²³- group, in which R²³ represents a hydrogen atom or an alkyl group having 1 to 20 carbon atoms; and X²¹ and X^{21'} each independently represent a hydrogen atom or a group capable of being substituted on the benzene ring.

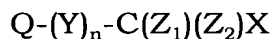
8. The photothermographic material of claim 1, which is exposed with laser light.

9. The photothermographic material of claim 8, wherein the laser light has a light emission peak intensity in a range of 390 nm to 430 nm.

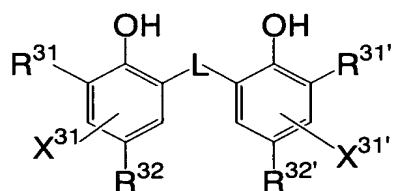
10. The photothermographic material of claim 1, wherein a characteristic curve of the photothermographic material has a gamma in a range of 2 to 5.

11. A photothermographic material comprising at least one photosensitive silver halide, a non-photosensitive organic silver salt, a reducing agent, and a binder on a surface of a support, wherein silver iodide is contained in the photosensitive silver halide in an amount of 40 % to 100 % by mole, the reducing agent contains a compound represented by the following formula (R-4), and a compound represented by the following formula (H) is contained in the photothermographic material with a molar ratio of the compound represented by formula (H) to the compound represented by formula (R-4) being 0.2 or greater:

Formula (H)



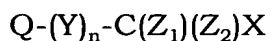
Formula (R-4)



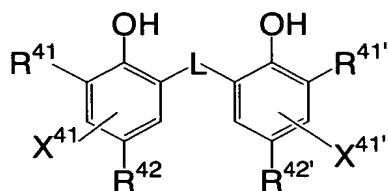
wherein, in formula (H), Q represents an alkyl group, an aryl group, or a heterocyclic group; Y represents a divalent connecting group; n represents 0 or 1; Z₁ and Z₂ each represent a halogen atom; and X represents a hydrogen atom or an electron withdrawing group, and wherein, in formula (R-4), R³¹ and R^{31'} each independently represent an alkyl group having 1 to 20 carbon atoms; R³² and R^{32'} each independently represent an alkyl group having 2 to 20 carbon atoms; L represents an -S- group or a -CHR³³- group, in which R³³ represents a hydrogen atom or an alkyl group having 1 to 20 carbon atoms; and X³¹ and X^{31'} each independently represent a hydrogen atom or a group capable of being substituted on the benzene ring.

12. A photothermographic material comprising at least one photosensitive silver halide, a non-photosensitive organic silver salt, a reducing agent, and a binder on a surface of a support, wherein silver iodide is contained in the photosensitive silver halide in an amount of 40 % to 100 % by mole, the reducing agent contains a compound represented by the following formula (R-5), and a compound represented by the following formula (H) is contained in the photothermographic material with a molar ratio of the compound represented by formula (H) to the compound represented by formula (R-5) being 0.15 or greater:

Formula (H)



Formula (R-5)



wherein, in formula (H), Q represents an alkyl group, an aryl group, or a heterocyclic group; Y represents a divalent connecting group; n represents 0 or 1; Z₁ and Z₂ each represent a halogen atom; and X represents a hydrogen atom or an electron withdrawing group, and wherein, in formula (R-5), R⁴¹ and R^{41'} each independently represent a methyl group or an alkyl group having 2 to 20 carbon atoms, in which a carbon atom bonding to the benzene ring is primary; R⁴² and R^{42'} each independently represent a hydrogen atom or a group capable of being substituted on the benzene ring; L represents an -S- group or a -CHR⁴³- group, in which R⁴³ represents a hydrogen atom or an alkyl group having 1 to 20 carbon atoms; and X⁴¹ and X^{41'} each independently represent a hydrogen atom or a group capable of being substituted on the benzene ring.

13. The photothermographic material of claim 11, wherein in formula (R-4), R³¹ and R^{31'} each represent a secondary or tertiary alkyl group having 3 to 15 carbon atoms.

14. The photothermographic material of claim 12, wherein in

formula (H), Q represents a heterocyclic group containing a nitrogen atom as a ring-constituting atom and not containing a sulfur atom.

15. The photothermographic material of claim 11, wherein an average content of the silver iodide in the photosensitive silver halide is 90 % to 100 % by mole.

16. The photothermographic material of claim 11, further comprising a development accelerator.

17. The photothermographic material of claim 11, which is exposed with light having a peak intensity in a range of 350 nm to 450 nm at an intensity of illumination of 1 mW/mm² or more.

18. The photothermographic material of claim 11, which is exposed by a semiconductor laser having a light emission peak intensity in a range of 390 nm to 430 nm.

19. The photothermographic material of claim 11, wherein a characteristic curve of the photothermographic material has a gamma in a range of 2 to 5.